

REMARKS

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Status of Claims:

No claims are currently being added.

Claims 4-6, 10-12, 16 and 19 are currently being canceled.

Claims 1, 7, 13, 15, 17 and 18 are currently being amended.

This amendment and reply cancels and amends claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claims remain under examination in the application, is presented, with an appropriate defined status identifier.

After canceling and amending the claims as set forth above, claims 1-3, 7-9, 13, 15, 17 and 18 are now pending in this application.

Claim Rejections – Non-Statutory Subject Matter:

In the final Office Action, claim 19 was rejected under 35 U.S.C. § 101, as being directed to non-statutory subject matter, for the reasons set forth on pages 2 and 3 of the final Office Action. Due to the cancellation of claim 19, this rejection is now moot.

In the final Office Action, claims 1-13 and 15-19 were rejected under 35 U.S.C. § 101, as lacking patentable utility, as set forth on pages 4 and 5 of the final Office Action. In reply, the presently pending claims have been amended to clearly recite patentable utility.

In more detail, the claimed invention is directed to perform the calculation of Fock matrixes used in the SCF (self-consistent field) method with a computer cluster in which each computer has a small memory capacity. In the SCF method, the calculation of the Fock matrix of a target molecule under the specific molecular orbital coefficients and the improvement of the molecular orbital coefficients using the calculated Fock matrix are repeated to obtain the final Fock matrix which is used to derive precise simulations of

structures and physical properties of the target molecule, and chemical bonds, molecular orbitals and electron states in the target molecule.

The presently pending independent claims have further been amended to define the calculation processes in a more specific manner, and to add features that **the target molecule is a molecule of a biological material and the density matrix is defined by molecular orbital coefficients of the target molecule.**

Still further, the presently pending independent claims now recite that the executing and transferring steps are repeated at the number of times which corresponds to the number of the computers to subject all of the density submatrixes to the calculation processes by sequentially transferring the density submatrixes between the computers, and a Fock matrix of the target molecule is obtained by adding an H-core matrix to the combination of resultant submatrixes stored in said matrix storages of said plurality of computers, which recites further patentable utility.

Lastly, in response to the comments made on page 7 of the final Office Action, the claims are now clearly limited to **the target molecule being a molecule of a biological material.**

As such, there is clear patentable utility recited in the presently pending claims.

Claim Rejections – 35 U.S.C. § 112, 1st Paragraph:

In the final Office Action, claims 1-13 and 15-19 were rejected under 35 U.S.C. § 112, 1st paragraph, “since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility” for the same reasons as set forth in the 35 U.S.C. § 101 rejection of those claims. For the same reasons as set forth above, this rejection has also been overcome due to the amendments made to the presently pending claims.

Conclusion:

Since all of the issues raised in the final Office Action have been addressed in this Amendment and Reply, Applicants believe that the present application is now in condition for allowance, and an early indication of allowance is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. § 1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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